

their regulation, therefore, as coming under the supervision of the medical licensing authority. However, the fact that the State Board of Health of California already maintains a laboratory bureau and has already taken cognizance of the situation makes the placing of the licensing of laboratorians under that division of the state government a reasonable plan for California. Such details naturally will be worked out differently in different states; the essential thing is the examination and licensing of individuals rather than institutions. Different classes will, of course, be necessary, covering different kinds of work, knowledge of which is not always combined in the same individual. Cellular pathology, biochemistry, bacteriology, serology, immediately suggest themselves as separate divisions, and applicants would apply for one or more certificates, according to their training and experience.

The problem is up to the medical profession and laboratory directors, and it is inconceivable that opposition can come from any but those having reason to fear the operation of such a measure.

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ANESTHESIA IN UROLOGIC SURGERY*

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THE choice of anesthetic in urologic surgery is a matter of concern to the internist, surgeon and anesthesiologist and has been the subject of much discussion and investigation in the past few years. That ether and chloroform inhibit kidney function is a well established fact, explained by Cushny as being due to the reduced blood pressure and impaired aeration of blood.

USE OF MORPHIN AND ATROPIN

The great progress that has been made in the development of local anesthesia makes it the ideal method for the selected patient but for the large proportion of cases, where general anesthesia is necessary, nitrous oxide best meets the requirements of urologic surgery. Unlike ether and chloroform, it has no effect upon blood pressure, other than to cause a rise during secondary saturation when the oxygen percentage is reduced. As nitrous oxide is not eliminated by the kidneys, its obvious advantage has caused it to be the anesthetic of choice in most urological clinics where a general anesthetic is indicated. The question, therefore, of withholding the preliminary morphin, which influences so strongly the course of nitrous oxide anesthesia, becomes a matter of great interest to the anesthesiologist.

The work done by Haines and Milliken in the Surgical Research Laboratory and the Department of Urology, Graduate School of Medicine, University of Pennsylvania, on the subject of the renal effects of morphin and atropin with ether anesthesia, suggested a comparison with the results under nitrous oxide and oxygen. Seeking in their experiments to obtain a criterion of the operability of pathologic cases, functional tests with intravenous

indigo carmin were made, with and without morphin and atropin both appearance time and elimination being estimated, the latter being measured at three twenty-minute intervals. The results of these tests in six typical cases proved that elimination was slightly better after the injection of morphin and atropin as shown by appearance test and percentage of dye eliminated.

A series of six dogs were injected intravenously with indigo carmin after thirty minutes of deep ether anesthesia, the etherization being then continued. Twenty minutes was the earliest appearance of the dye. The same dogs a week later were given morphin and atropin half an hour before etherization and the appearance time was four and five minutes, which was as soon as in the control cases and normal unanesthetized dogs. They conclude from these experiments that morphin and atropin in the usual hypodermic dose does not affect the kidney function unfavorably and that in dogs it prevents the inhibition produced by ether. Because of the supposed retardation of urinary secretion produced by morphin and atropin, it has been customary to omit it in cystoscopies and ureteral catheterizations under nitrous oxide. This investigation was undertaken to determine whether nitrous oxide anesthetization inhibited kidney function and if so whether morphin and atropin prevented this inhibition, as in the case of ether.

Cystoscopies in adults are usually done under some form of local anesthesia but here again the preliminary morphin would be of great value for the preoperative psychic effect and postoperative relief from pain, if it proves not to interfere with kidney function. Morphin is frequently the determining factor in the possibility of obtaining muscular relaxation under gas anesthesia and if, as Haines and Milliken suggest, it does not interfere with elimination, then urologic operations, which contraindicate ether and where complete muscular relaxation is necessary, such as perineal and supra pubic prostatectomies, nephrectomies and operations on the bladder, as well as cystoscopies and ureteral catheterizations, may be done under nitrous oxide without the addition of ether.

The evaluation of the preoperative use of morphin in general surgery is still a matter of controversy. That anesthesia is immeasurably benefited by its circulatory sedation, muscular relaxation, control of mucus production and the prevention of apnea, due to psychic effect and slowing of respiration, is generally accepted.

One of the outworn traditions, that of its danger to children, is being gradually discarded. In the Children's Hospital, morphin and atropin, in properly graded dosage, is given almost as routine before tonsillectomies and, covering a period of thirty years, the records show no fatalities. Formerly, two years was the lowest age limit for nitrous oxide, even for induction, with the gas ether sequence, but the increasing number of infants and young children in whom cystoscopies for diagnostic purposes were found necessary, led to the use of gas. Time is an important element in the safety of anesthesia in infants and the difficulty of ureteral catheterization, with the occasional necessity for repetition at short

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intervals, positively contraindicate the use of ether.

Hugh Young, in his recent work, deplors the fact that the diagnostic methods of modern urology are rarely called into use for the benefit of very young children and urges propaganda to prove to clinicians the desirability and simplicity of these methods. No doubt this attitude on the part of urologists is due to a realization of the dangers of ether and chloroform and the impracticability of local anesthesia in this class of patients with a lack of knowledge of the advantages and safety of nitrous oxide anesthesia.

ANESTHESIA IN SEVENTY-SIX CHILDREN

A review of seventy-six cystoscopies on female patients done at the Children's Hospital, San Francisco, showed the following results:

Ages 5 months to 72 years.

Five cases under 1 year.

Seven cases between 1 and 4 years.

Ten cases between 4 and 10 years.

Sixty-three patients were given nitrous oxide and oxygen, ten of these having varying amounts of ether in addition and five straight ether with gas induction, five being done under local anesthesia.

The functional kidney tests with indigo carmin or phenosulphonephthalein made in these cases for diagnostic purposes unfortunately have no significance in this inquiry as there is no opportunity for comparison. The records, however, of voluntary micturition following anesthesia show some interesting results.

One patient, aged 5 months, who was cystoscoped four times under nitrous oxide and oxygen for periods of twenty-five minutes to one hour, twenty minutes, voided one to two and a half hours later.

Another, 5 months old, forty minutes under nitrous oxide, voided three hours later.

A six-months-old case, nitrous oxide and oxygen for one hour, five minutes, who was given 1/700 gr. atropin, voided four hours after anesthesia and a week later after forty-five minutes of gas without atropin, in three and a half hours.

A patient of 32—nitrous oxide and oxygen for thirty minutes, given M. S. gr. 1/6 without atropin preoperatively and again ten minutes after anesthesia, voided in two hours.

One, eighteen-year-old, given M. S. gr. 1/4 and atropin 1/150, preliminary to forty minutes of nitrous oxide, voided in one hour.

A resumé of the times of voluntary micturition shows a noticeable retardation in the cases where ether was used, a slight one with atropin and none with morphin alone.

Observation of two cases in which the phenosulphonephthalein functional test of 1 cc. intramuscular injection was made, gave these results:

Adult—Cystoscopy and ureteral catheterization under nitrous oxide and oxygen; fifty minutes. Appearance test made at end of anesthesia, ten minutes, and a week later with no anesthetic the appearance time was the same.

Three-year-old girl—Cystoscopy and ureteral catheterization; nitrous oxide and oxygen, fifty

minutes, appearance test made at end of anesthesia; twelve and a half minutes and without anesthesia twelve and a quarter minutes. No morphin or atropin was given in these cases.

The cases are too few to justify any conclusions being drawn, but the results would seem to show that nitrous oxide causes no appreciable inhibition of kidney function. The effect of morphin is somewhat contradictory, two of the cases show a retardation and one an acceleration of the appearance time.

EXPERIMENTS IN DOGS

In the Hooper Research Department of the University of California the work of Haines and Milliken was duplicated on a series of dogs, using nitrous oxide anesthesia instead of ether.

The dogs of approximately the same weight were injected intravenously with 1 cc. of phenosulphonephthalein without anesthesia and the appearance time noted. Two days later the test was repeated under nitrous oxide anesthesia, and after the same interval a third test was made under nitrous oxide anesthesia preceded by morphin gr. 1/4 and atropin Gr. 1/600, given ten minutes before anesthetization, with the following results:

	I Male puppy	II Male fox terrier	III Female tan dog
1 cc. phenosulphone-phthalein intravenously	4 min.	4 min.	8½ min.
1 cc. phenosulphone-phthalein intravenously	6 min.	3 min.	7 min.
	Length of anesthesia		
N ₂ O and O.....	36 min.	13 min.	17 min.
Morphin gr. 1/4; atropin gr. 1/600; phenosulphone-phthalein intravenously	11 min.	6 min.	6 min.
	Length of anesthesia		
N ₂ O and O.....	28 min.	22 min.	18 min.

Hypodermic of morphin and atropin given ten minutes before anesthetizing the animals.

Animals anesthetized for ten minutes or more before injecting the dye.

Further research is needed to establish the action of morphin on renal function.

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Autogenous Vaccine—Deadly Snakes Now Conquered by Science is the title of an interesting article in the *Science News Letter* for June 4 by Raymond L. Ditmars, curator of reptiles at the New York Zoological Park. Doctor Ditmars recently sailed for Algiers, to see there, according to reports in the New York papers, for a second time a native snake charmer who permits the deadly cobra to bite his nose. Doctor Ditmars is reported to have stated that he believes this Algerian snake charmer immunized himself in early youth and so became permanently impervious to snake bites. In an interview published in a recent issue of the New York *Herald Tribune* Doctor Ditmars is reported as having revealed that at least one American, Colonel M. L. Crimmins, U. S. A., retired, has immunized himself against rattlesnake bites. This has been done so successfully that he has used his own blood as a serum when other persons in Texas were bitten, and the emergency of regular serum had run out. The remedy was effective and scientists are studying the circumstances closely.—*M. J. and Record.*

When the baby is SIX MONTHS OLD have your DOCTOR give TOXIN-ANTITOXIN to PREVENT DIPHTHERIA.—United States Public Health Service.